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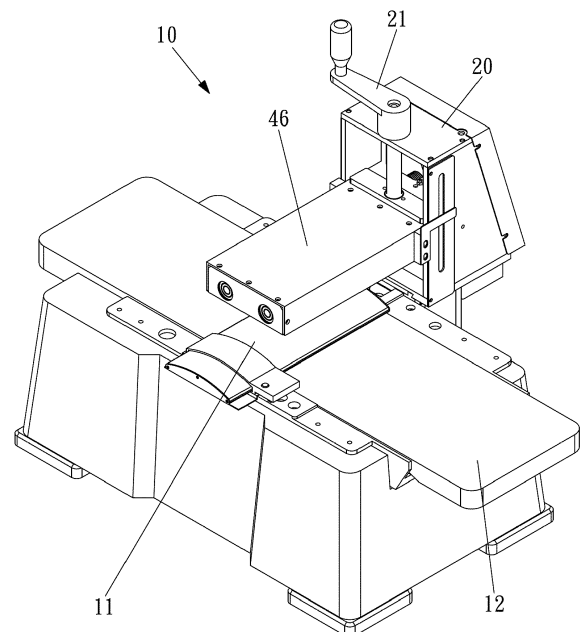
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(54) **PUSHER FOR PLANER**

(57) A pusher for a planer contains: a body (10), a planer (11), a movable control portion (20), and a push member (46). The planer (11) includes a cutter (13) and a drive shaft (14). A transmission portion (15) is formed on the body (10), and a reduction wheel (17) is connected with a horizontal rod (16). A longitudinal rod (30) is engaged with the horizontal rod (16), and a drive head (32) is formed on the longitudinal rod (30). When the cutter (13) rotates, the drive shaft (14) transmits kinetic energy to the movable control portion (20) to urge a pushing wheel (45) to rotate synchronously, and the drive shaft (14) drives the pushing wheel (45) to rotate slowly via the reduction wheel (17), hence a wood (18) is pushed slowly and is pressed and pushed by the pushing wheel (45) to be planed automatically.



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Description

FIELD OF THE INVENTION

[0001] The present invention relates to a pusher for a planer which when the planer cutter rotates, the drive shaft transmits kinetic energy to the movable control portion to urge the pushing wheel to rotate synchronously, and the drive shaft drives the pushing wheel to rotate slowly via the reduction wheel, hence the wood is pushed slowly and is pressed and pushed by the pushing wheel to be planed automatically.

BACKGROUND OF THE INVENTION

[0002] A conventional planer contains a body on which a press device is arranged, and the conventional planer contains multiple idlers arranged in the press device so that when a wood is pushed through a body, it is pushed by a press force. Furthermore, the wood is pushed forward smoothly.

[0003] However, the conventional reading stand has defects as follows:

A wood is pushed by a user, but it cannot be pushed forward to be planned with an even pushing force.

[0004] The present invention has arisen to mitigate and/or obviate the afore-described disadvantages.

SUMMARY OF THE INVENTION

[0005] The primary aspect of the present invention is to provide a pusher for a planer which when the planer cutter rotates, the drive shaft transmits kinetic energy to the movable control portion to urge the pushing wheel to rotate synchronously, and the drive shaft drives the pushing wheel to rotate slowly via the reduction wheel, hence the wood is pushed slowly and is pressed and pushed by the pushing wheel to be planed automatically.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006]

FIG. 1 is a perspective view showing the assembly of a pusher for a planer according to a preferred embodiment of the present invention.

FIG. 2 is a perspective view showing the assembly of the pusher for the planer according to the preferred embodiment of the present invention.

FIG. 3 is a cross sectional view showing the assembly of the pusher for the planer according to the preferred embodiment of the present invention.

FIG. 4 is a perspective view showing the assembly of a part of the pusher for the planer according to the preferred embodiment of the present invention.

FIG. 5 is a side plan view showing the operation of a part of the pusher for the planer according to the preferred embodiment of the present invention.

FIG. 6 is another side plan view showing the operation of a part of the pusher for the planer according to the preferred embodiment of the present invention.

FIG. 7 is another side plan view showing the operation of a part of the pusher for the planer according to the preferred embodiment of the present invention.

FIG. 8 is also another side plan view showing the operation of a part of the pusher for the planer according to the preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0007] With reference to FIGS. 1-4, a pusher for a planer according to a preferred embodiment of the present invention comprises: a body 10, a planer 11 mounted on a top of the body 10, a movable control portion 20, a push member 46 arranged on a front end of the movable control portion 20 above the planer 11; wherein the planer 11 includes a cutter 13 and a drive shaft 14 in the body 10, the drive shaft 14 extends to a lower portion of the movable control portion 20, and a transmission portion 15 formed on a rear end of the body 10, a horizontal rod 16, a reduction wheel 17 connected with the horizontal rod 16, wherein a drive head 32 is formed on a rear end of the longitudinal rod 30. A front end of the drive head 32 of the longitudinal rod 30 fitted with a rotatable block 60, wherein the rotatable block 60 includes an idler pulley 61 located above the drive head 32, and the rotatable block 60 includes an arcuate orifice 62 defined on an upper end thereof above the idler pulley 61. The drive head 32 of the longitudinal rod 30 is fitted with a first end of a lower belt 33, a second end of the lower belt 33 is fitted on a first receiving portion 35 of a transmission rod 34 above the longitudinal rod 30, and the idler pulley 61 is located inside a transmitting portion 31 and the drive head 32, an upper belt 36 is fitted on a front end of the lower belt 33, and the upper belt 36 is fitted on a wheel rod 40 and an auxiliary rod 54. The wheel rod 40 includes a second receiving portion 41 of a rear end thereof, a guiding portion 42 formed on a front end of the second receiving portion 41, a pushing wheel 45 fixed in the push member 46 of the wheel rod 40. The upper belt 36 is fitted on the second receiving portion 41, and the guiding portion 42 has a transmitting belt 43 fitted on a first end thereof. A second end of the transmitting belt 43 is fitted on an actuation rod 44 beside the wheel rod 40, the actuation rod 44 has a driving portion 47 formed on a rear end thereof so as to fit with the transmitting belt 43, and the actuation rod 44 has another pushing wheel 45 connected with the push member 46.

[0008] The auxiliary rod 54 is supported on an auxiliary abutting block 50 inserted onto a positioning rod 52 which is mounted on a base 51, and a returning spring 53 is fitted on the positioning rod 52 between the base 51 and

the auxiliary abutting block 50.

[0009] Furthermore, the movable control portion 20 includes a rotary shaft 21 mounted on an upper end of the movable control portion 20 and extending to the movable control portion 20 inwardly. The movable control portion 20 includes a movable pedestal 22 connected with the wheel rod 40.

[0010] Referring to FIGS. 4-6, the rotatable block 60 rotates along the longitudinal rod 30, a locking portion 63 is arranged on the body 10 inside of the arcuate orifice 62 so that after the lower belt 33 is fitted with the drive head 32 of the longitudinal rod 30 and the first receiving portion 35 of the transmission rod 34 to control the rotatable block 60 to rotate, and the idler pulley 61 of the rotatable block 60 abuts against the lower belt 33 outward, and the rotatable block 60 is locked with the locking portion 63 by ways of a screw bolt. Thereby, the lower belt 33 is tightened, released, fixed, and detached easily by ways of the rotatable block 60 and the idler pulley 61 easily.

[0011] Referring to FIGS. 4-7, after controlling the rotary shaft 21 of the movable control portion 20, the movable pedestal 22 of the movable control portion 20 lifts and descends, and the auxiliary abutting block 50 is pushed upward by the returning spring 53, such that when the push member 46 is pushed to any heights, the upper belt 36 is tightened.

[0012] Accordingly, when the planer operates, a wood 18 is pushed to the planer 11 from a platform 12, the wood 18 contacts with the pushing wheel 45 of the push member 46, and a user rotates the rotary shaft 21 to control the pushing wheel 45 to press the wood 18. When the cutter 13 rotates, the drive shaft 14 transmits kinetic energy to the movable control portion 20 to urge the pushing wheel 45 to rotate synchronously, and the drive shaft 14 drives the pushing wheel 45 to rotate slowly via the reduction wheel 17, thus pushing the wood 18 slowly. The wood 18 is pressed and pushed by the pushing wheel 45 to be planed automatically.

[0013] While the preferred embodiments of the invention have been set forth for the purpose of disclosure, modifications of the disclosed embodiments of the invention and other embodiments thereof may occur to those skilled in the art. Accordingly, the appended claims are intended to cover all embodiments which do not depart from the spirit and scope of the invention.

Claims

1. A pusher for a planer comprising:

a body (10), a planer (11) mounted on a top of the body (10), a movable control portion (20) fixed on a rear end of the planer (11), and a push member (46) arranged on a front end of the movable control portion (20) above the planer (11);
characterized in that

the planer (11) includes a cutter (13) and a drive shaft (14) in the body (10), the drive shaft (14) extends to a lower portion of the movable control portion (20), and a transmission portion (15) formed on a rear end of the body (10), a horizontal rod (16), a reduction wheel (17) connected with the horizontal rod (16), and the longitudinal rod (30) is engaged with the horizontal rod (16), wherein a drive head (32) is formed on a rear end of the longitudinal rod (30);

a front end of the drive head (32) of the longitudinal rod (30) fitted with a rotatable block (60), wherein the rotatable block (60) includes an idler pulley (61) located above the drive head (32), and the rotatable block (60) includes an arcuate orifice (62) defined on an upper end thereof above the idler pulley (61);

the drive head (32) of the longitudinal rod (30) is fitted with a first end of a lower belt (33), a second end of the lower belt (33) is fitted on a first receiving portion (35) of a transmission rod (34) above the longitudinal rod (30), and the idler pulley (61) is located inside a transmitting portion (31) and the drive head (32);

an upper belt (36) is fitted on a front end of the lower belt (33), and the upper belt (36) is fitted on a wheel rod (40) and an auxiliary rod (54);

the wheel rod (40) includes a second receiving portion (41) of a rear end thereof, a guiding portion (42) formed on a front end of the second receiving portion (41), a pushing wheel (45) fixed in the push member (46) of the wheel rod (40), the upper belt (36) is fitted on the second receiving portion (41), and the guiding portion (42) has a transmitting belt (43) fitted on a first end thereof, a second end of the transmitting belt (43) is fitted on an actuation rod (44) beside the wheel rod (40), the actuation rod (44) has a driving portion (47) formed on a rear end thereof so as to fit with the transmitting belt (43), and the actuation rod (44) has another pushing wheel (45) connected with the push member (46);

the auxiliary rod (54) is supported on an auxiliary abutting block (50) inserted onto a positioning rod (52) which is mounted on a base (51), and a returning spring (53) is fitted on the positioning rod (52) between the base (51) and the auxiliary abutting block (50);

the movable control portion (20) includes a rotary shaft (21) mounted on an upper end of the movable control portion (20) and extending to the movable control portion (20) inwardly, the movable control portion (20) includes a movable pedestal (22) connected with the wheel rod (40); the rotatable block (60) rotates along the longitudinal rod (30), a locking portion (63) is arranged on the body (10) inside of the arcuate orifice (62).

2. The pusher for the planer as claimed in claim 1, wherein after controlling the rotary shaft (21) of the movable control portion (20), the movable pedestal (22) of the movable control portion (20) lifts and descends. 5
3. The pusher for the planer as claimed in claim 1, wherein when the movable pedestal (22) of the movable control portion (20) lifts and descends, and the auxiliary abutting block (50) is pushed upward by the returning spring (53), such that when the push member (46) is pushed to any heights, the upper belt (36) and the transmitting belt (43) are tightened. 10
4. The pusher for the planer as claimed in claim 1, wherein after the lower belt (33) is fitted with the drive head (32) of the longitudinal rod (30) and the first receiving portion (35) of the transmission rod (34) to control the rotatable block (60) to rotate, and the idler pulley (61) of the rotatable block (60) abuts against the lower belt (33) outward, and the rotatable block (60) is locked with the locking portion (63) by ways of a screw bolt. 15 20

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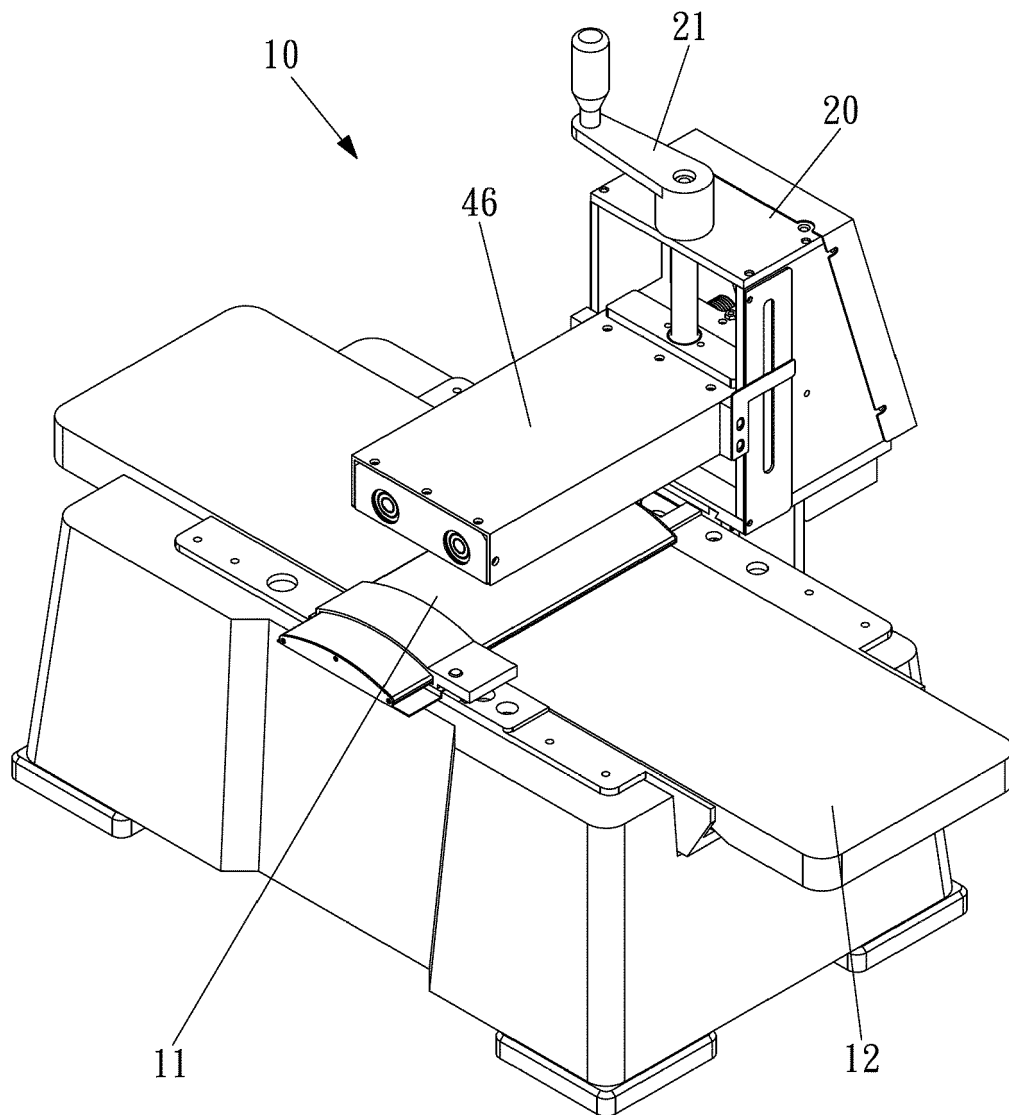
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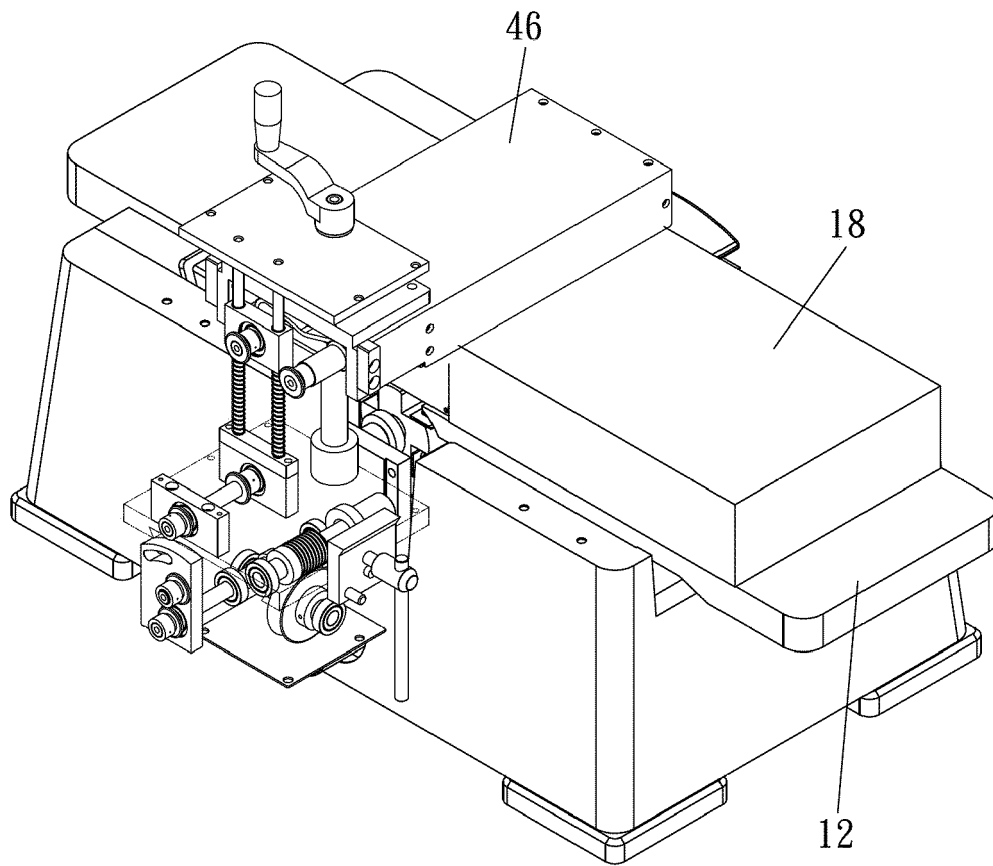
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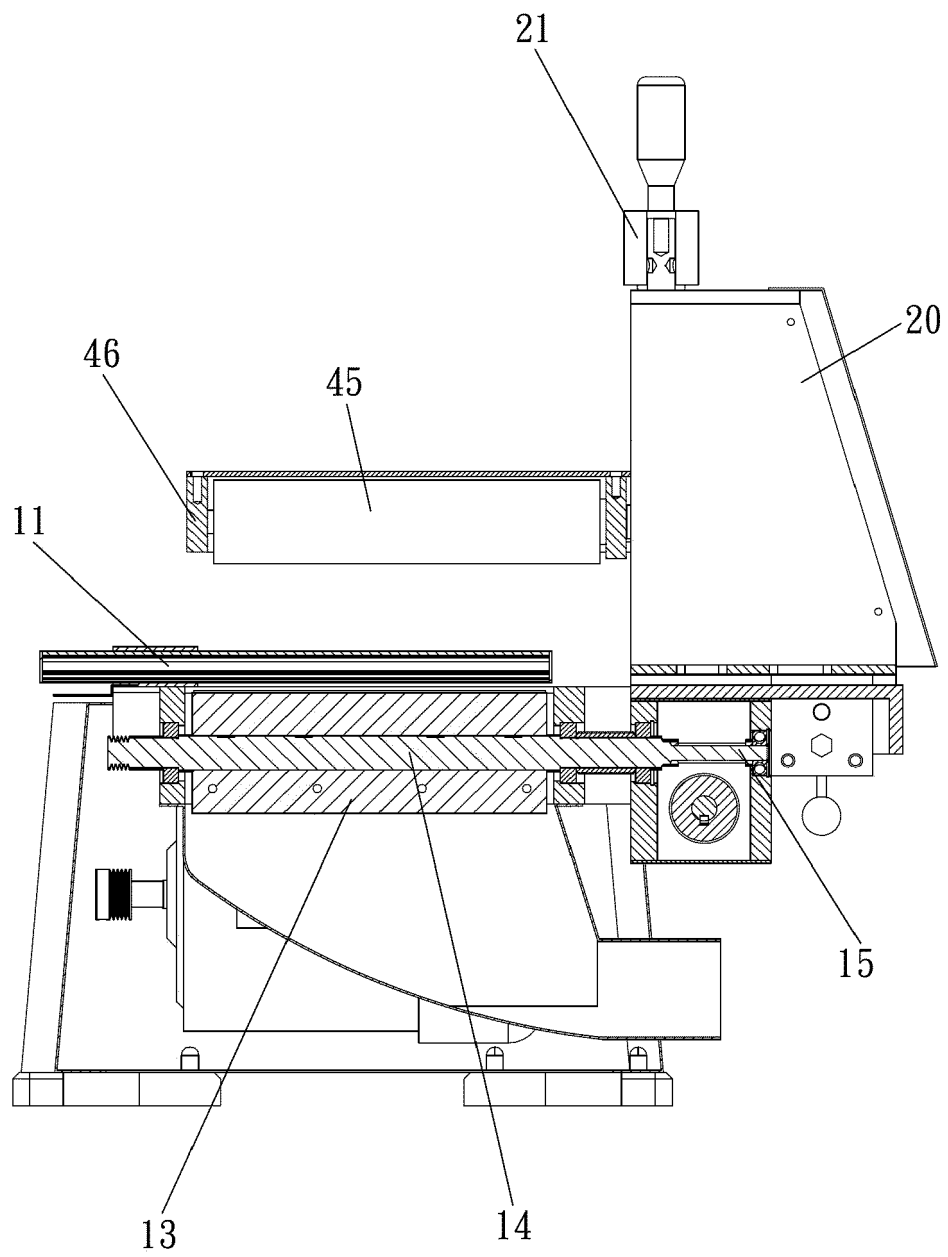
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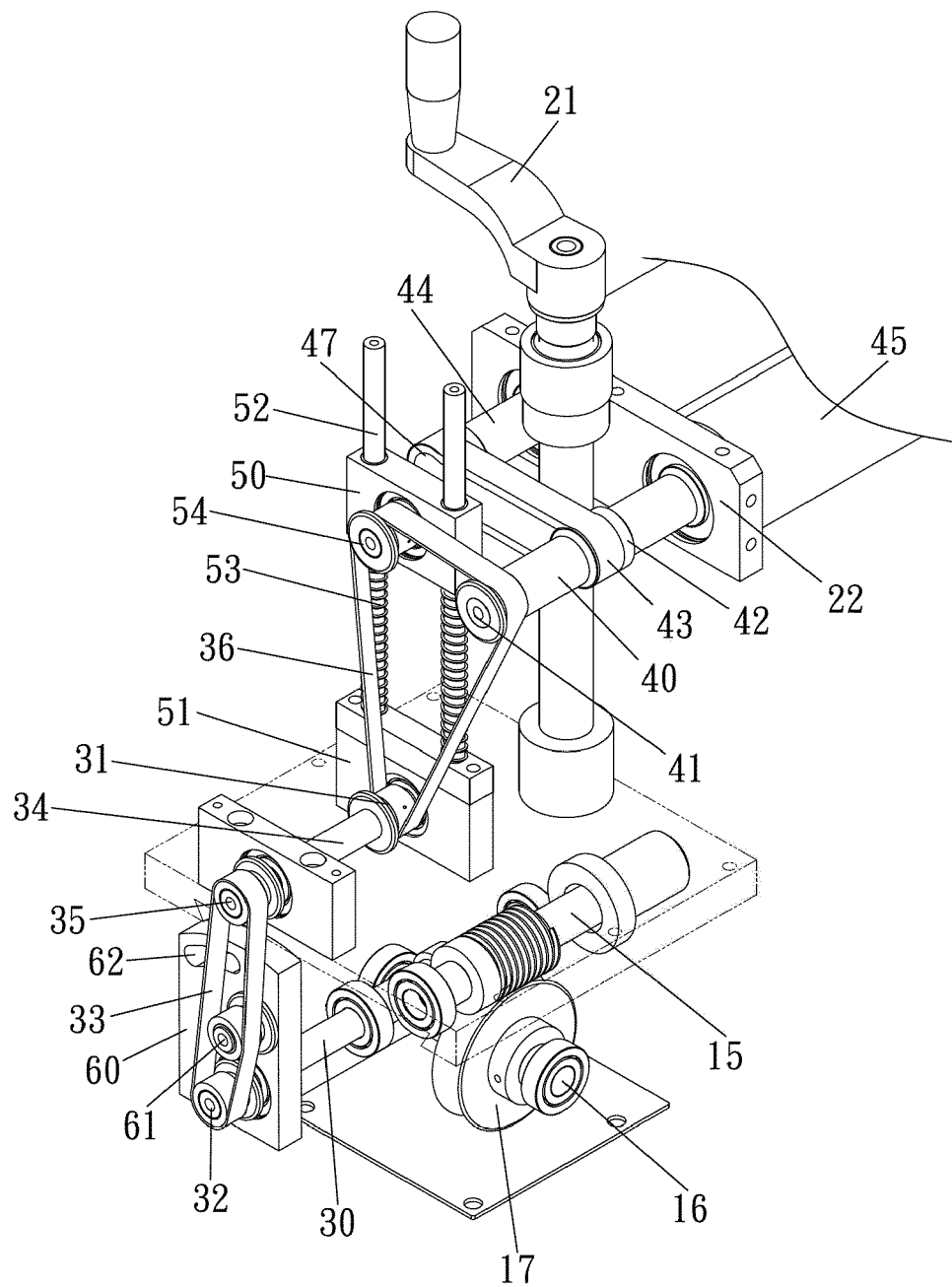
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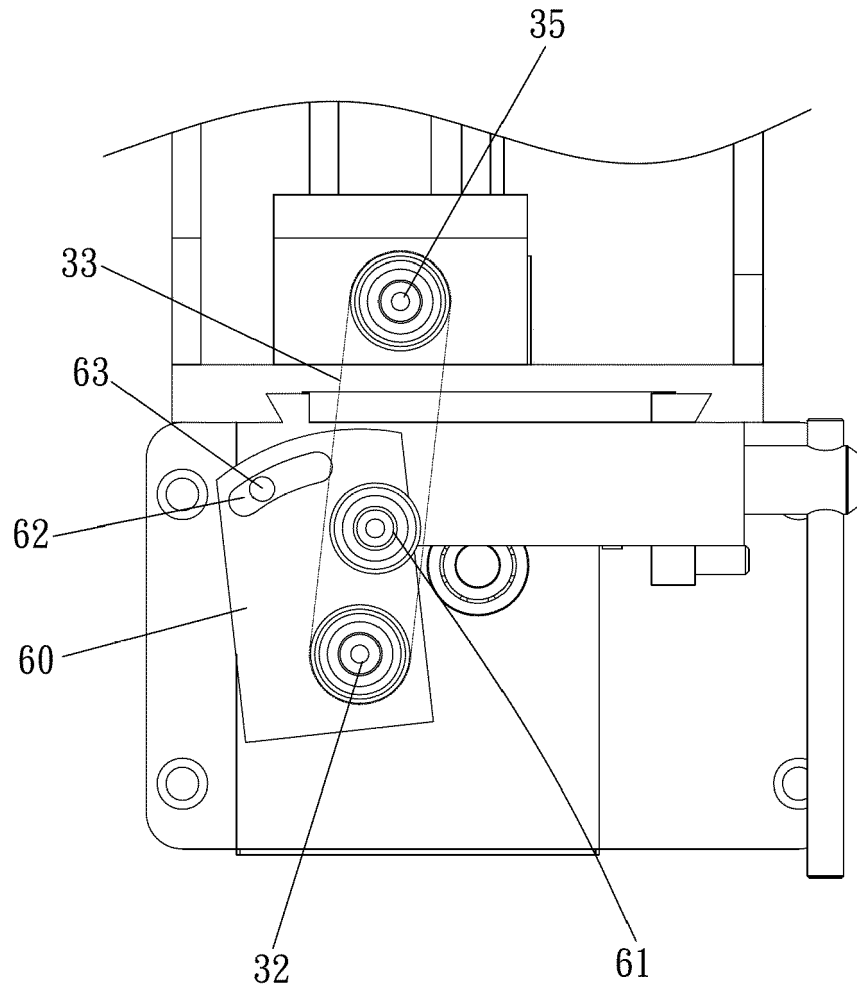
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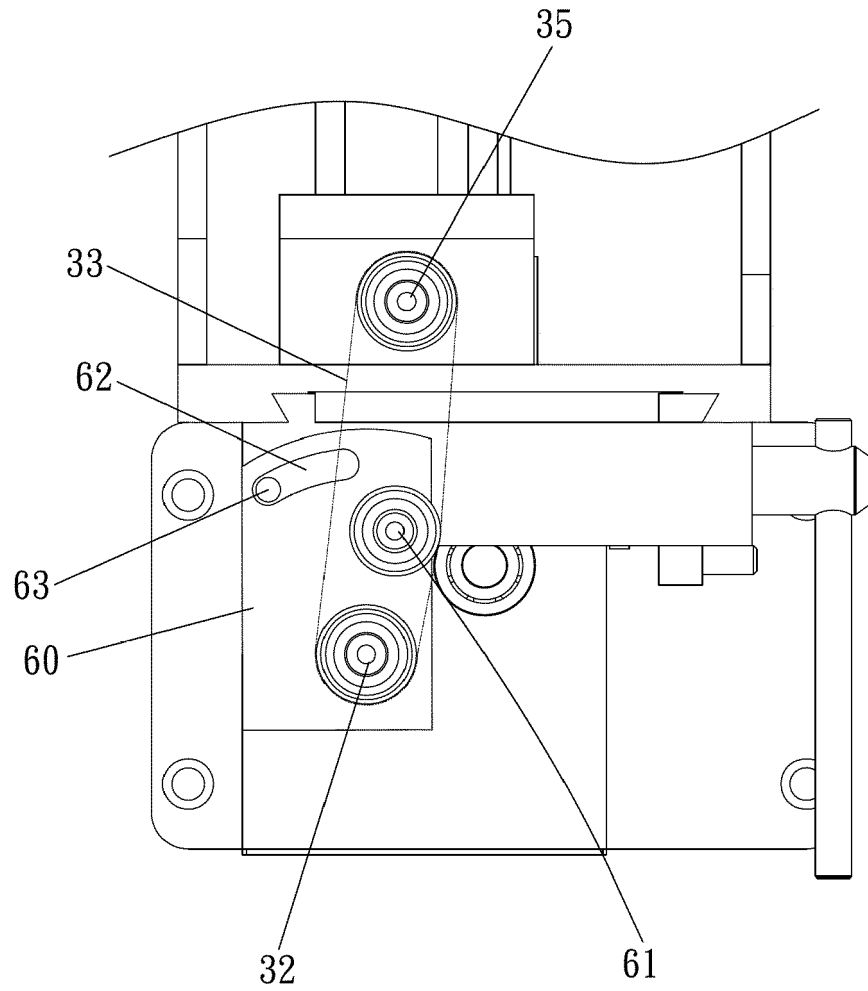
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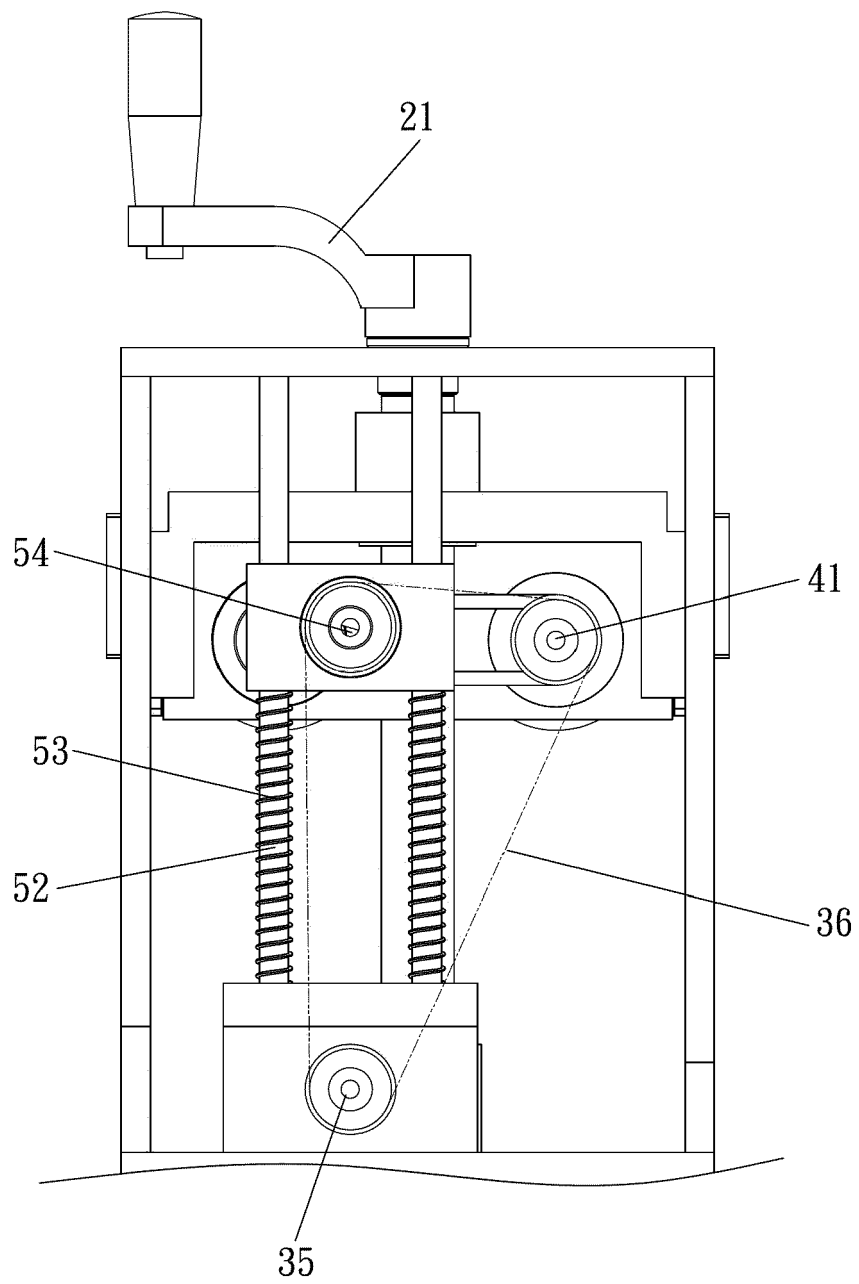
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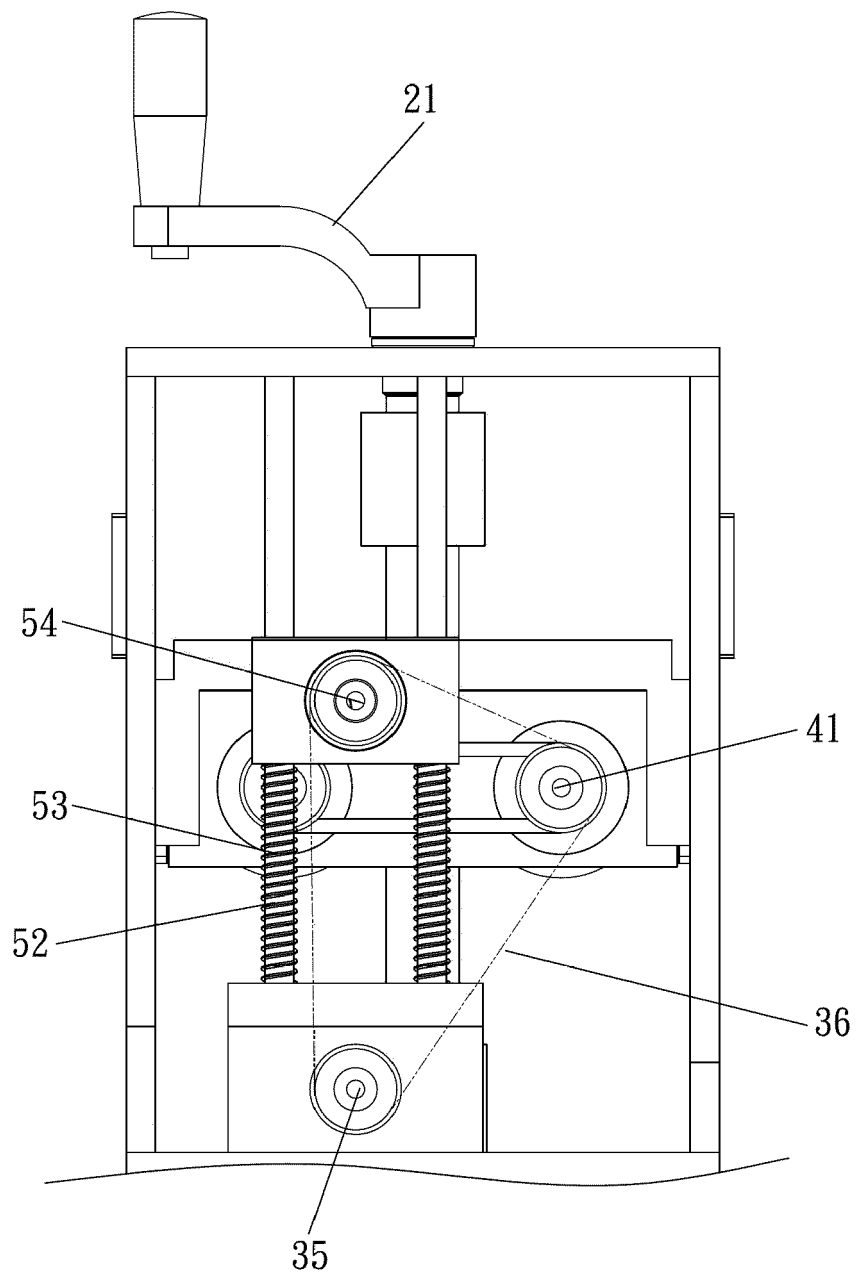
F I G . 5



F I G . 6



F I G . 7



F I G . 8



EUROPEAN SEARCH REPORT

Application Number
EP 19 20 1799

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DOCUMENTS CONSIDERED TO BE RELEVANT			
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X	US 2010/000630 A1 (CHUANG BOR-YANN [TW]) 7 January 2010 (2010-01-07) * abstract * * figures 1-9 * * paragraphs [0004], [0024], [0025] *	1-4	INV. B27C1/12 B27C5/02 B27C5/06
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			TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 20 April 2020	Examiner Hamel, Pascal
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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